

FACE INVESTIGATION

SUBJECT: Farm Worker Dies after Fall from Silo Chute Ladder

SUMMARY: A 29 year-old male farm worker (the victim) died after falling from a silo ladder. The ladder is mounted on the exterior wall of the concrete silo and is enclosed by a metal chute, which starts approximately 6 feet from ground level. A silo room encloses the bottom end of the chute and connects the silo to the barn. The ladder rungs are made of smooth metal, and are mounted on the hatch doors that provide access to the interior of the silo. On the day of the incident, the silo wall surface inside the chute was covered with a thick layer of shelled corn pieces and the rungs were covered with moist cracked corn. The victim was wearing smooth-soled boots. He climbed approximately 33 feet on the ladder and opened a hatch door to shovel out cracked corn for animal feed. The farm owner (the farmer) found the victim slumped at the base of the chute with his head tucked to his chest. The victim was non-responsive, so the farmer pulled him out from under the ladder and called to two workers in the farm yard. The farmer started CPR while another farm worker called 911. Police and EMS arrived and continued resuscitation procedures. The coroner arrived, and the victim was pronounced dead at the scene and transported to the funeral home. The coroner examined the body at the funeral home and drew blood samples for analysis of alcohol and drugs. The Wisconsin FACE investigator concluded that, in order to prevent similar occurrences, farmers should:

- ! Ensure that farm workers wear slip-resistant footwear when working on slippery surfaces.**
- ! Establish and implement a routine maintenance program to keep silo chutes and ladders clean and dry.**
- ! Install and maintain silo ladder equipment that conforms to current OSHA regulations for fixed ladders.**

INTRODUCTION:

On October 16, 1993, a 29 year old farm worker died following a fall from a ladder in a silo chute. The Wisconsin FACE investigator learned of the incident through television and newspaper reports of the fatality. On February 7, 1994, the Wisconsin FACE field investigator conducted an investigation of the incident. The incident was reviewed with the farm owner, and photographs were taken of the incident site. Copies of the death certificate, sheriff's report and the county coroner's report were obtained.

The dairy farm where the incident occurred has been owned and operated as a family business for over ten years. The victim had worked occasionally on the farm for over two years. There was no written farm safety policy or safety program. The farmer explained that the victim had performed this type of work many times before in the same manner. There is no formal training program for the farm workers, and most

tasks are learned through on-the-job experience.

INVESTIGATION:

On the day of the incident, the victim had been working with the farmer at a nearby farm for several hours before arriving at the farm where the incident occurred at around 3:15 PM. The farmer left the farm yard to retrieve equipment from a field, and the victim entered the silo room. The silo room encloses the bottom end of the silo chute and connects the silo to the barn. A ladder is mounted on the exterior wall of the cement silo and is enclosed by a metal chute, which extends out from the silo wall about 30", and starts approximately 6 feet from ground level. The ladder rungs are made of smooth metal, and are mounted on the hatch doors that provide access to the interior of the silo. On the day of the incident, the rungs were covered with moist cracked corn, and the victim was wearing smooth-soled boots. He climbed approximately 33 feet on the ladder and opened a hatch door to shovel out cracked corn for animal feed, and apparently slipped or lost his balance and fell. During the fall, he apparently struck his head on the structures within the chute and lost consciousness. When the farmer returned, he found the victim slumped at the base of the chute with his head tucked to his chest. The victim was non-responsive, so the farmer pulled him out from under the ladder and called to two workers in the farm yard. The farmer started CPR while another farm worker called 911. Police and EMS arrived and continued resuscitation procedures. The coroner arrived, and the victim was pronounced dead at the scene and transported to the funeral home. The coroner examined the body at the funeral home and drew blood samples for analysis of alcohol and drugs.

CAUSE OF DEATH: The death certificate listed the immediate cause of death as positional asphyxia, caused by a fall of approximately 35 feet landing with neck bent forward. The blood samples were negative for drugs and alcohol.

RECOMMENDATIONS/DISCUSSION:

Recommendation # 1: Employers/farmers should ensure that farm workers wear slip-resistant footwear when working on slippery surfaces.

Discussion: Footwear that is designed to improve traction should be available and worn by farm workers who must work on slippery surfaces. In this incident, the victim was wearing smooth-soled cowboy boots while climbing a silo ladder that had smooth metal ladder rungs covered with moist animal feed. Slip-resistant footwear might have prevented this fatality.

Recommendation # 2: Establish and implement a routine maintenance program to keep silo chutes and ladders clean and dry.

Discussion: Silo ladders and chutes should be routinely cleaned to prevent the accumulation of silage and grain products on rungs and chute surfaces. The ladder rungs in this incident were covered with shelled corn pieces and other debris, which may have caused a slippery surface. Also, the accumulated layers of corn debris on the silo wall inside the chute decreased the clearance distance between the rung and the silo wall, which decreased the space for a secure foothold on the rung. The clearance is only about five inches if there is no debris buildup.

Recommendation # 3: Install and maintain silo ladder equipment that conforms to current OSHA regulations for fixed ladders.

Discussion: The OSHA standard for fixed ladders 29 CFR 1910.27 establishes the dimensions for ladder rung size, design and placement, and for chute diameter. In this incident, the ladder rung length, diameter, and the distance between the rungs did not conform to these standards. Although this farm situation does not come under OSHA jurisdiction, farmers should implement these standards when installing new or replacement silo ladders.